

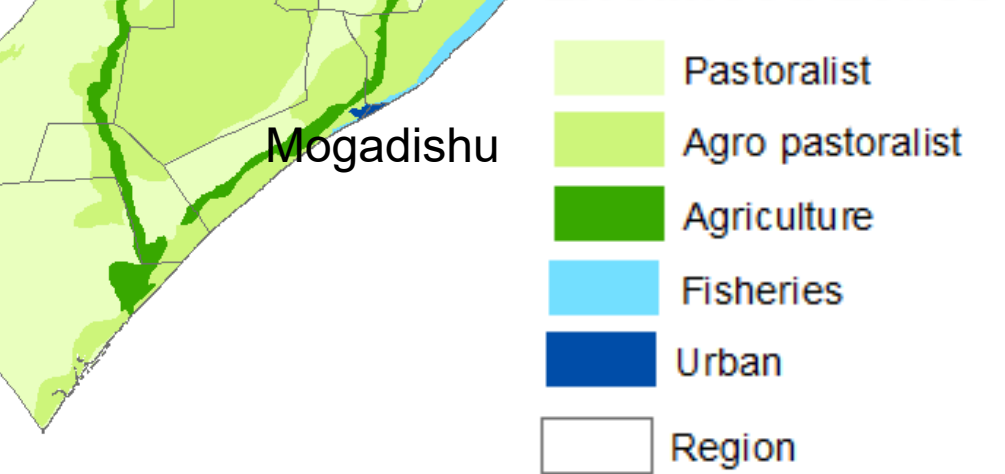


# Drought in Somalia: Estimating Vulnerability to Food Insecurity



## Introduction

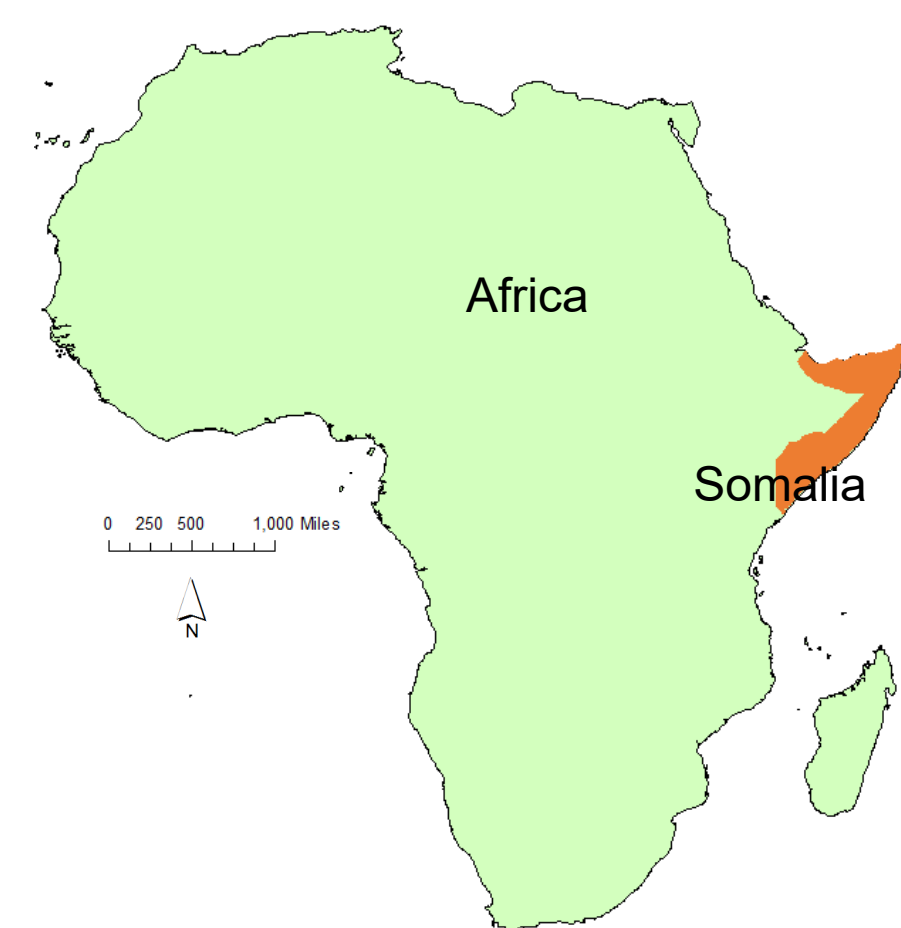
Somalia is one of the poorest countries in the world, which in addition to ongoing conflict, experiences periodic droughts. In 2017, Somalia was affected by a drought that made approximately 50% of its population food insecure and in some areas killed up to 80% of livestock. Drought disproportionately affects Somalia because most of its population depends on pastoralist, agro pastoralist and agricultural livelihoods. The presence of armed conflict also affect households' ability to cope to drought



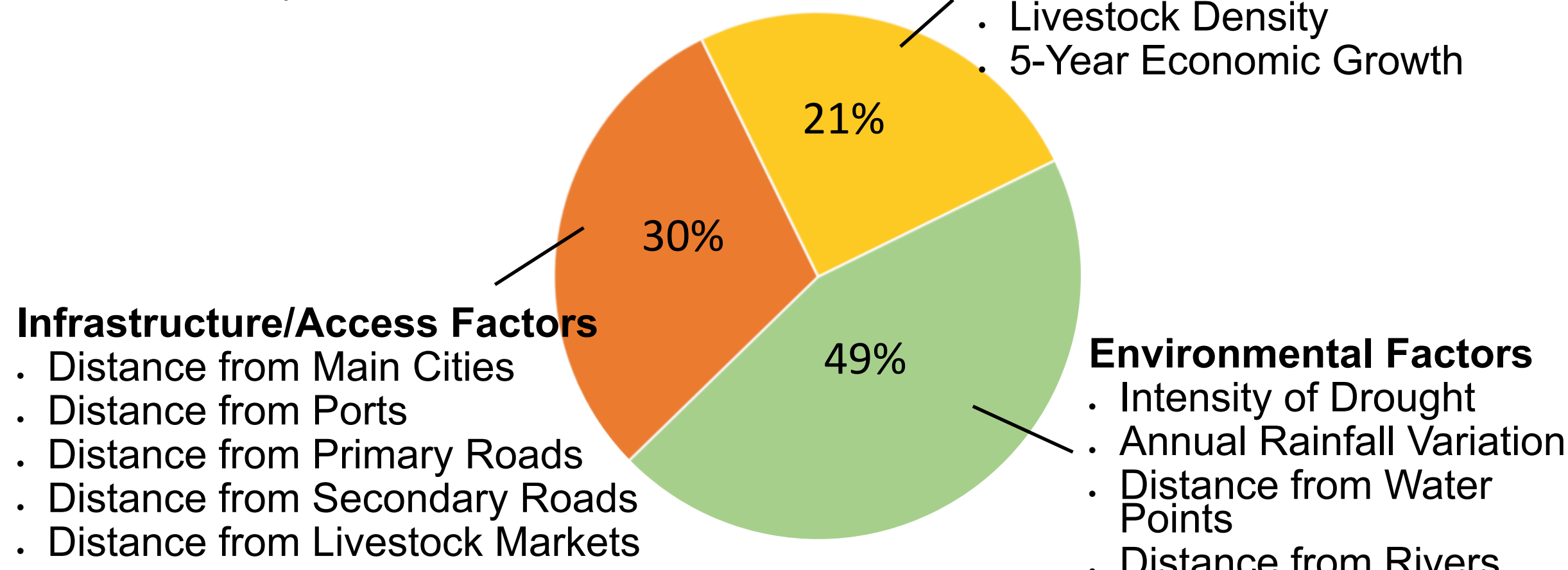
WFP has developed a food security vulnerability index based on coping mechanisms adopted by households. However, there relationship between high vulnerability regions and regions where a higher percentage of households used any coping mechanisms (coping mechanism uptake) is negative, suggesting that vulnerability (defined as the need to resort to a coping mechanism to food insecurity as a result of drought) is not solely explained by coping mechanisms. I calculated a separate vulnerability index based on environmental, infrastructure/access and politico-economic factors to compare it to the WFP index. Understanding the drivers of both vulnerability and coping mechanism selection is key to future drought response.

## Methodology

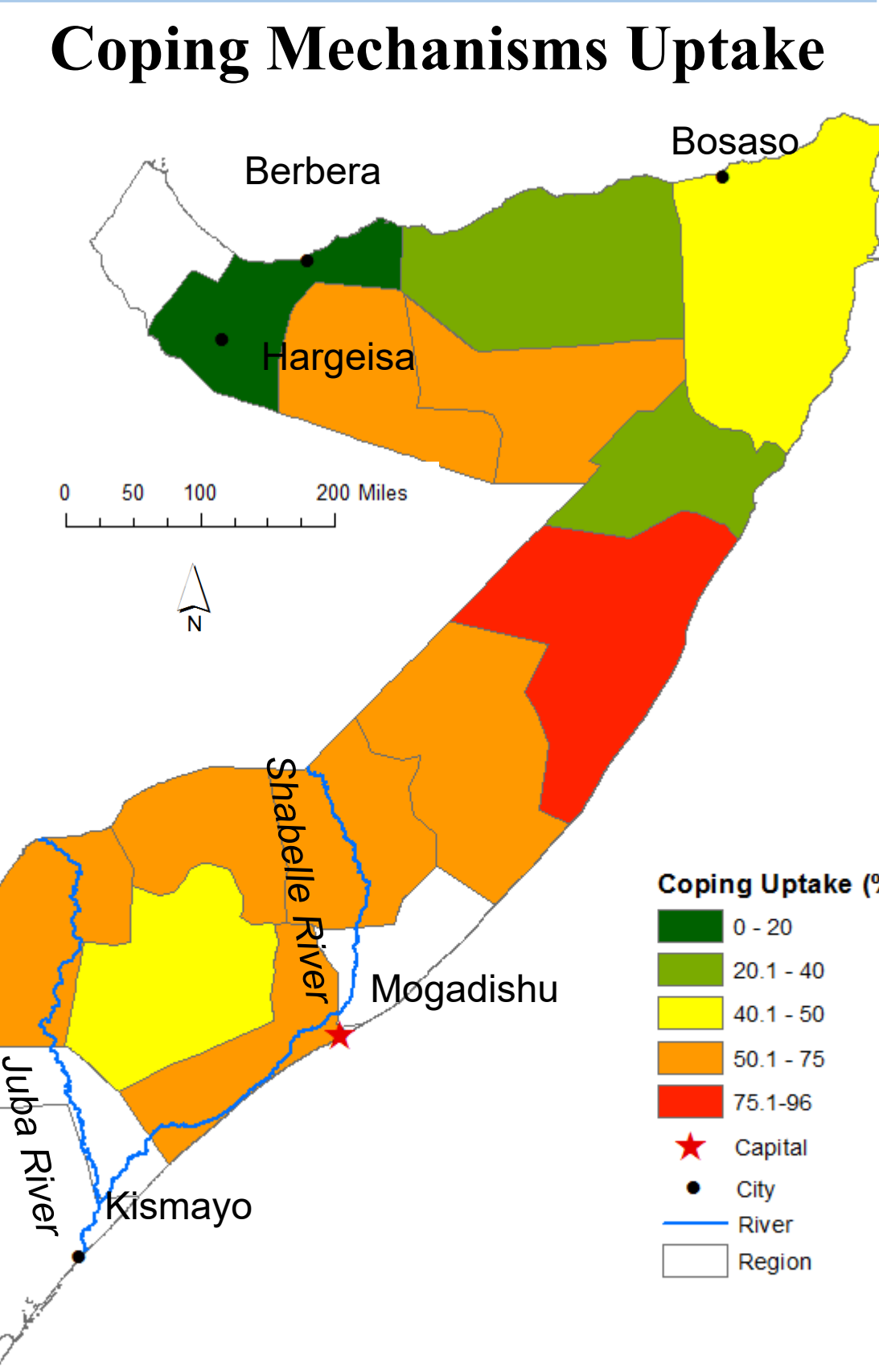
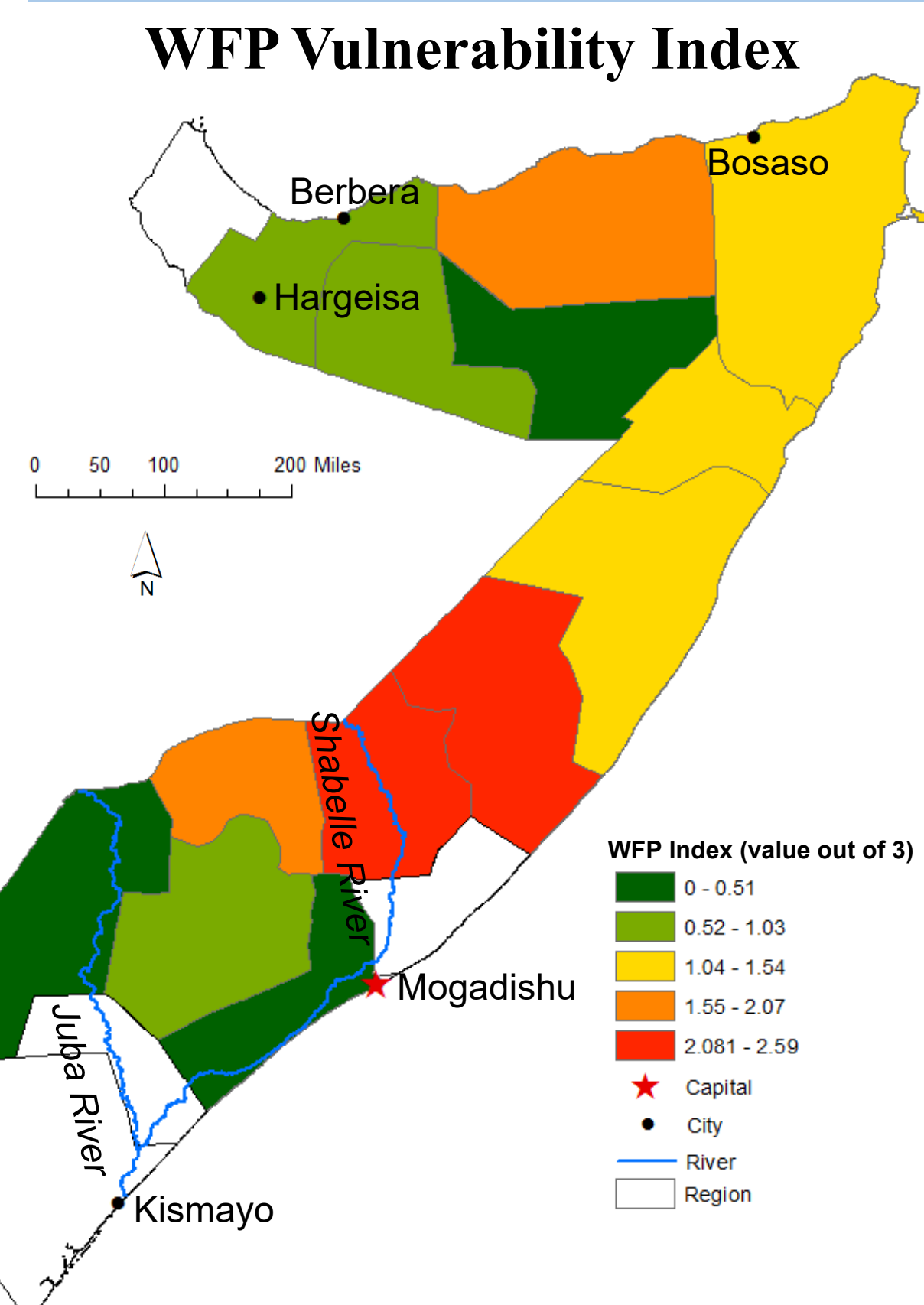
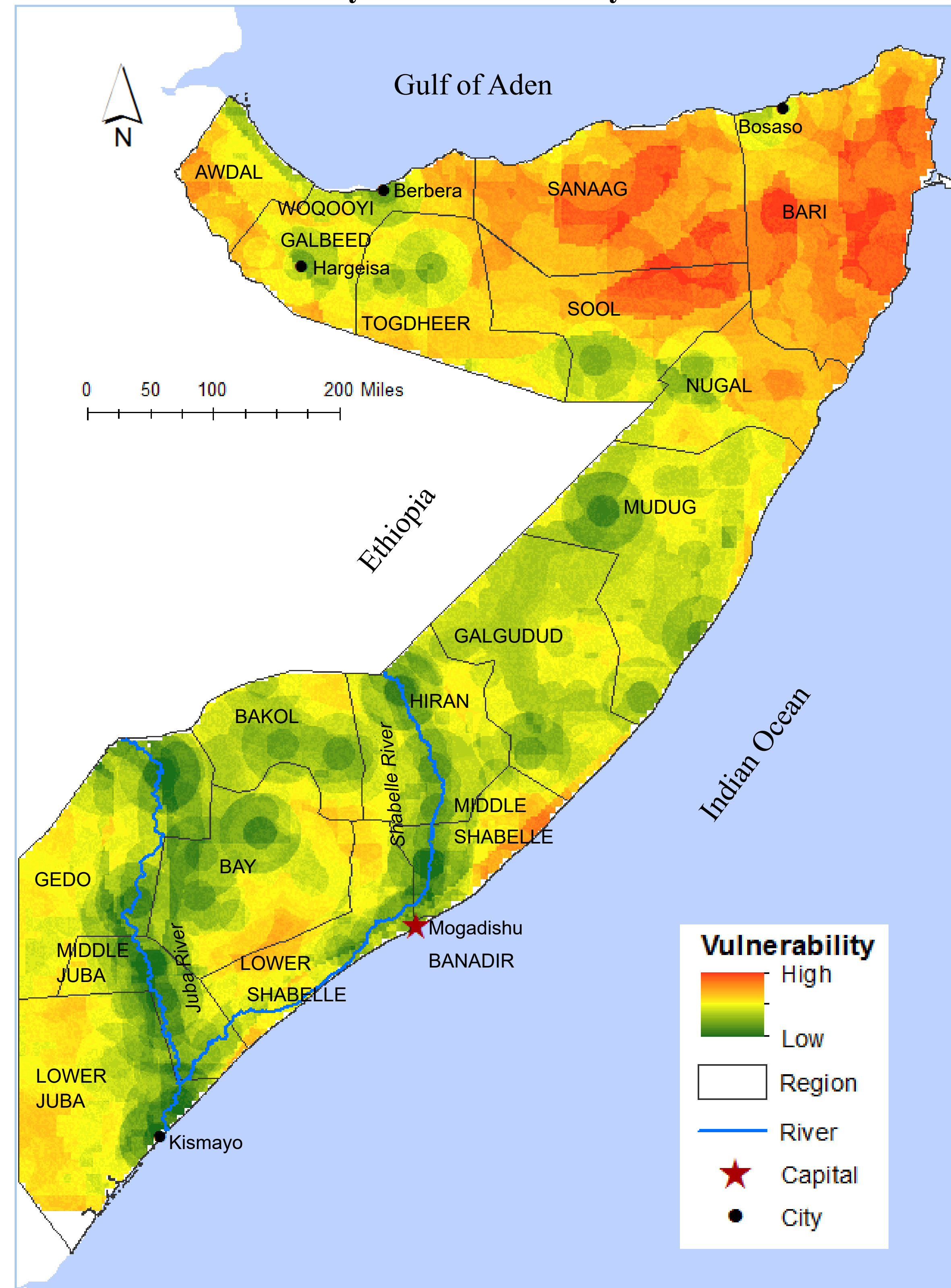
The alternative vulnerability index was calculated using weighted raster analysis . To identify relevant environmental, infrastructure/access and politico-economic factors, I referred to literature on vulnerability in the contexts of drought, food security and conflict situations. The variables included distance from ports, cities and roads, distance from water sources and markets, rainfall variation, drought severity and livestock density, conflict density and economic growth Then, zonal statistics were used to compare both indexes and uptake of coping mechanisms.



### Components of the Alternative Vulnerability Index



## Vulnerability to Food Insecurity Index



## Limitations

The main limitation of this study is the lack of granular, current data on Somalia. For instance, coping mechanisms data was only representative at the regional level which assumes equal population distribution (which is known to be markedly unequal) and limits analysis to a very large unit. Similarly, information on access to water and roads is based on the presence of these and not their accessibility. For instance, it is possible that many smaller water points could have dried up during the drought, but that is not captured in this analysis

## Findings

In most regions, the alternative index estimated a higher level of vulnerability than the WFP index and a closer approximation to regional coping mechanism uptake. This suggests that the new index may provide a better estimate of vulnerability probably due to its more holistic approach. However, it is also likely that the new index overstates vulnerability given the potential overlap between variables. Interestingly there seemed to be no relationship between internal variation in regional uptake of coping mechanisms and the new index. This means that more research must be done on the topic of vulnerability and coping mechanisms to understand what is driving the uptake of certain coping mechanisms and how it related to vulnerability to food insecurity.

## Comparing Regional Vulnerability Scores and Coping Mechanisms Uptake

Region	Index (/3)	WFP Index (/3)	Coping Mechanism Uptake (%)
Awdal	2.20		
Bakol	1.96	1.97	50.33
Banadir	1.80		
Bari	2.44	1.19	49.33
Bay	1.98	0.77	47.67
Galgadud	1.98	2.59	50.67
Gedo	1.94	0.09	54
Hiran	1.93	2.19	58.67
Lower Juba	2.04		
Lower Shabelle	2.05	0.49	58.33
Middle Juba	1.84		
Middle Shabelle	2.00		
Mudug	1.98	1.15	89
Nugal	2.18	1.54	36.67
Sanag	2.43	1.73	40
Sool	2.27	0.47	57
Togdheer	2.13	0.73	61.67
Woqooyi Galbeed	2.12	0.9	19.67

Cartographer: Ananda Paez Rodas  
UEP 232: Introduction to GIS  
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Coordinate System: WGS 1984  
Projection: UTM 38N  
Sources: ACLED, FAO SWALIM, FSNAU, Harvest Choice, HDX  
Photo: Al Jazeera & Ayaan Hirsi Ali Blog



THE FLETCHER SCHOOL  
TUFTS UNIVERSITY

